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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/597,002	09/20/2007	Geir Monsen Vavik		4604

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GEIR M. VAVIK
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EXAMINER

D AGOSTA, STEPHEN M

ART UNIT	PAPER NUMBER
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2617

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/597,002	Applicant(s) VAVIK, GEIR MONSEN	
	Examiner Stephen M. D'Agosta	Art Unit 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16, 18 and 19 is/are rejected.
- 7) ☒ Claim(s) 17 and 20 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 September 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Art Unit: 2617

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-16, 18-19 provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 171-230 of copending Application No. 10-501043. Although the conflicting claims are not identical, they are not patentably distinct from each other because the broadly teach cascaded “repeaters” using multiple frequencies (at least two) to transmit data to/from users over an extended signal communication distance.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

NOTE: If the applicant amends (novel) claims 17 or 20 into claim 11, then there is **NOT** a double patenting rejection since these two claims put forth different concepts and the examiner will remove his double patenting rejection.

If the applicant wishes to NOT amend, then the examiner requires a Terminal Disclaimer be executed/sent.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 11 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The examiner has several “issues” with the claim language and that which the applicant is trying to claim as their inventive concept. The claim uses broad language and is therefore open to considerable interpretation.

a. What is meant by “high frequency transmission range”? Where is this defined in the specification (eg. as to a quantitative frequency range).

b. What is meant by “stability”? Where is this defined in the specification and quantified?

c. Why does the applicant include the term “including power grid distribution and termination points”? Is this the only place for this repeater to be used?, if so, then the claim should be written as “an analog signal repeater system used in a power grid and distribution system where repeaters with signal gains.....”. Otherwise, it can be used anywhere and the additional of that term adds no patentable weight.

d. What is the significance of the term “cascade”? Repeaters are typically “cascaded” in that one connects to another to extend/relay the signal a greater distance that possible by non-repeated conveyance.

e. What does the applicant mean by the phrase “...wherein at least two electrically accessible physical points include at least one repeater at each of said points..”? It appears to merely describe a physical repeater device that has an input and output, is this the case?

Art Unit: 2617

f. The phrase "...where said repeater cascade is using not more than two frequency bands for one signal direction..." is a **design choice** since repeaters can use one, multiple, infinite number of frequencies to relay a signal.

g. What is meant by the phrase "...combination of transfer losses and inserted dampening"? Is this meant as describing that there will be transmission/transfer losses as a signal propagates and that there will be hardware/filters used to reduce these losses?

h. What is meant by the phrase "to control problems"? It appears to just mean that interference will be "reduced/mitigated", which would be better wording. Otherwise, the term "control" should be defined in the claim (eg. to control interference by reducing/mitigating its effect, etc).

For the purposes of examination, the examiner has considered the above to mean a repeater system with input/output used in at least a power line system (that supports data communication) and has/uses filtering to reduce interference

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-13, 15-16, and 18-19 rejected under 35 U.S.C. 103(a) as being unpatentable over Lee and further in view of Komara and {Maxwell **or** Masuda}.

As per **claim 11**, Lee teaches an analog signal repeater system where repeaters with signal gains are applied to facilitate high frequency transmission range and stability and bandwidth across a signal transmission distance including power grid distribution and termination points (Title, Abstract, Figure 1 shows repeaters #72/#74 in a power line data communication system) comprising:

the repeater system wherein at least one of said signal transmission distance is constituting a repeater cascade wherein at least two electrically accessible physical points include at least one repeater at each of said points (figure 1 shows repeaters with at least two points – eg. input and output – which connect users/CPE's over a long distance, the repeaters are interpreted as being “cascaded” in that they connect directly to each other);

where said repeater cascade is using not more than two frequency bands for one signal direction (Lee discusses “frequency translation” in ***the modem or repeater***, see Para #75 and he does not specifically teach using “more than two bands”, hence this reads on the claim);

but is silent on

where the combination of transfer losses and inserted dampening increase isolation between ports at said physical points of said repeaters in any of said frequency band to control problems from interference between said ports of at least one of said

Art Unit: 2617

physical points and between at least one of said ports in at least one of said physical points and one of said ports in at least one other of said physical points.

Lee does teach either the modem or repeater can filter data away from interference (Para #75) and the Abstract generically teaches “a plurality of frequency filters are used to filter out unwanted signals” – which could be used in either the modem or repeater.

At least **Komara** teaches a repeater/relay device which isolates the uplink and downlink channels/ports (see figure 5). Note that Komara is being put forth to specifically teach a high level repeater device that uses isolation/dampening within the device to “control problems from interference between ports” such that there is isolation between the uplink port and downlink port (eg. between the input/output):

The intelligent RF repeater-translator 320 can be thought of as having two paths: a downlink path and an uplink path. In the downlink path, an RF signal from the BTS 310 is received at the backhaul duplexer 500. The backhaul duplexer 500 has an input range of -65 dBm to -95 dBm, with a target receive level of -70 dBm. The backhaul duplexer 500 filters the received RF downlink signal and also provides the isolation from an uplink signal, allowing a single antenna connection for both the uplink and downlink backhaul signals. C4, 35-45

Note that either **Masuda** or **Maxwell** repeater/relay devices that are able to use one-or-more frequencies between sender and receiver:

- i. See Masuda's figures 2-3 which show multiple frequencies being used for uplink and downlinks.
- ii. Compare Maxwell's figures 1-3. Figure 1 shows only one frequency (F) being used while figures 2-3 show multiple frequencies (F1, F2).

It would have been obvious to one skilled in the art at the time of the invention to modify Lee, such that where the combination of transfer losses and inserted dampening increase isolation between ports at said physical points of said repeaters in any of said frequency band to control problems from interference between said ports of at least one

Art Unit: 2617

of said physical points and between at least one of said ports in at least one of said physical points and one of said ports in at least one other of said physical points, to provide means for interference mitigation hardware on the repeater device to isolate the uplink/downlink ports from each other.

As per **claim 12**, the combo teaches claim 1, further comprising said repeater cascade to be using one of said repeaters for each transmission direction in each repeater point and where said repeaters are using at least different frequency bands for said transmission directions in each repeater point to achieve duplex and signal transmission in more than one direction across said signal transmission distance (Lee teaches using frequency translation as discussed above and Masuda/Maxwell teach using multiple frequencies in the uplink/downlink directions. Hence one skilled understands this to be a “design choice” as to how many frequencies can be used and in which directions).

As per **claim 13**, the combo teaches claim 1, wherein said two frequency bands being used by said repeaters to employ frequency conversion (Lee teaches using frequency translation as discussed above and Masuda/Maxwell teach using multiple frequencies in the uplink/downlink directions. Hence one skilled understands this to be a “design choice” as to how many frequencies can be used and in which directions).

As per **claim 15**, the combo teaches claim 1, wherein said repeater cascade is using two frequency bands using two of said repeaters in at least one repeater point where said repeaters each repeat signals on the same frequency in one of said frequency bands to provide full duplex transmission (Lee teaches using frequency translation as discussed above and Masuda/Maxwell teach using multiple frequencies in the uplink/downlink directions. Hence one skilled understands this to be a “design choice” as to how many frequencies can be used and in which directions).

Again, as discussed above, the use of one, two, many, infinite frequencies to transmit/receive is a design choice since the Lee/Masuda/Maxwell all teach using one (or more) frequencies for uplink/downlink channels.

As per **claim 16**, the combo teaches claim 1, further comprising at least one of said repeaters with said two way transmission to be interfaced to two-way wireless communication device (Lee/Masuda/Maxwell teach the ability to provide repeater functionality for both wired and wireless networks. One skilled can merely change the transceiver input/output in order to change the interface to either wired or wireless or optical or infrared, etc.).

The examiner takes **Official Notice** that one skilled can provide different interfaces on a repeater such that it uses wired/wireless communications.

See **Meier**, *pertinent but not cited*, who teaches repeaters with wired/wireless interfaces (C7, L30-35):

Repeater--An intermediate relay node which is used to extend the range of the controller node. Repeater-to-controller or repeater-to -repeater links can be wired or wireless RF.

As per **claim 18**, the combo teaches claim 1, wherein at least one of said repeater cascade is utilizing a single conductor for signal transmission in at least one direction between at least two of said repeaters (Lee teaches a single conductor/link between the repeaters in figure 1 while Masuda/Maxwell teach a single “channel”).

As per **claim 19**, the combo teaches claim 1, **but is silent on** wherein at least one of said repeater cascade to include at least one junction of conductors where at least one conductor acts as additional said port.

The examiner broadly interprets this to claim to mean a 1:many interface where perhaps one signal INPUT to the repeater can be broken out into several OUTPUTS, eg. a splitter box. If used within a house, then a single INPUT (eg. from a cable TV link) can be split and transmitted to several rooms in the house.

The examiner takes **Official Notice** that 1:N breakout boxes are well known and the repeater can therefore have one INPUT and SEVERAL OUTPUTS that can be transmitted to various, different locations.

It would have been obvious to one skilled in the art at the time of the invention to modify the combo, such that wherein at least one of said repeater cascade to include at least one junction of conductors where at least one conductor acts as additional said port, to provide means for the repeater to provide more than one output (eg. is a splitter).

Claim 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Lee, Komara and {Maxwell **or** Masuda} and further in view of {Amit **or** Shalvi}.

As per **claim 14**, the combo teaches claim 1, **but is silent on** further comprising an adapter connected to at least one of said repeaters allowing equipment with standardized modulation and protocol that include duplex system standards as in Docsis cable modem standards.

The examiner notes that the power line data communication network (as per Lee) is an analog network and cable TV networks are analog as well, hence one skilled would be motivated to use similar technologies on both networks (eg. DOCSIS protocols/modulation on a power line).

Amit teaches a CATV network that uses DOCSIS and repeaters (col 4, #5).

Art Unit: 2617

Furthermore, **Shalvi** broadly teaches DOCSIS data communications/networking using CATV, Power Line, etc.,:

[Para #0046] In order to distribute reliably and consistently latency sensitive applications such as voice and video, Home Networks preferably will be a managed network that is coordinated and synchronized with the DOCSIS network. Currently, the emerging 802.11e standard is probably best positioned to become the backbone of such a network. Its QoS service capabilities coupled with its competitive cost, and its inherent advantage of complete home coverage with no wires at all, make it a good candidate for the HN technology of choice for delivering cable broadband services. That said, the Home Network will probably be a heterogeneous environment in which multiple HN technologies will co-exist. In addition, wired HN technologies such as HPNA and power line will probably ultimately adopt QoS functionality which will make them better suited for the distribution of cable broadband services into the home. The present invention disclosed herein, will enable provision of improved broadband service to the home with varied HN technologies particularly as HN standard, such as HPNA, evolve and addition and improve upon managed network and QoS functionality.

It would have been obvious to one skilled in the art at the time of the invention to modify the combo, such that an adapter connected to at least one of said repeaters allowing equipment with standardized modulation and protocol that include duplex system standards as in Docsis cable modem standards, to provide means for adapting the repeater to be used within well known analog systems such as power line communications, CATV/Docsis systems, etc..

Allowable Subject Matter

Claims 17 and 20 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

These claims present highly detailed designs that are not found in the prior art:

claim 17: "...wherein the said isolation between ports in electrically accessible physical points consisting of conductor junctions is increased using toroids with magnetic material on at least two conductors while differential signal couplers are connected galvanically through capacitors to at least two conductors on the cable side and while at least one capacitor differentially provides a high frequency low impedance shunt impedance for at least two conductors on the junction side".

claim 20, "...wherein the said isolation between ports in electrically accessible physical points consisting of conductor junctions is increased using toroids with magnetic material on at least two conductors while differential signal couplers are connected to a wire looping through said toroids on at least said two conductors on the cable side and while at least one capacitor differentially provides a high frequency low shunt impedance for at least two conductors on the junction side".

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure is found also in the PTO-892 form.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. D'Agosta whose telephone number is 571-272-7862. The examiner can normally be reached on M-F, 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jinsong Hu can be reached on 571-272-3965. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Stephen M. D'Agosta/
Primary Examiner, Art Unit 2617